



BASIC SKILLS COMPETENCY TEST

Mathematics Section 1 2002 Released Form



DO NOT OPEN THIS BOOKLET
UNTIL YOU ARE TOLD TO DO SO.



Utah Performance Assessment System for Students

GENERAL DIRECTIONS

The Mathematics subtest of the Utah Basic Skills Competency Test has two sections.

Section 1: Noncalculator



You may not use a calculator on this section of the test. You will have a formula sheet to help you answer questions. Please do all of your work in the test booklet.

Work quickly and carefully and you will have enough time to answer all of the questions. When you reach the , you have reached the end of the section. If you finish all of the questions in a test section early, you may check your work in that test section **only**. Do not look at the questions in any other section.

Read each question carefully. If you do not know the answer to a question, go on to other questions in the same section and return to the unanswered question later. If you skip a question, make sure that you leave the corresponding answer circle blank on your answer sheet.

Multiple-choice questions require you to choose the **best** answer from four answer choices. After you choose an answer, fill in the circle for your answer in the space provided on your answer sheet. Mark only one answer to each question. No credit will be given for multiple marks. If you wish to change an answer, erase the old mark completely before marking a new one.

When you reach the end of Section 1 and have answered all of the questions, raise your hand. The test administrator will then pick up your test booklet. After the test administrator has your Section 1 test booklet, you may take out your calculator and begin Section 2.

SECTION 1

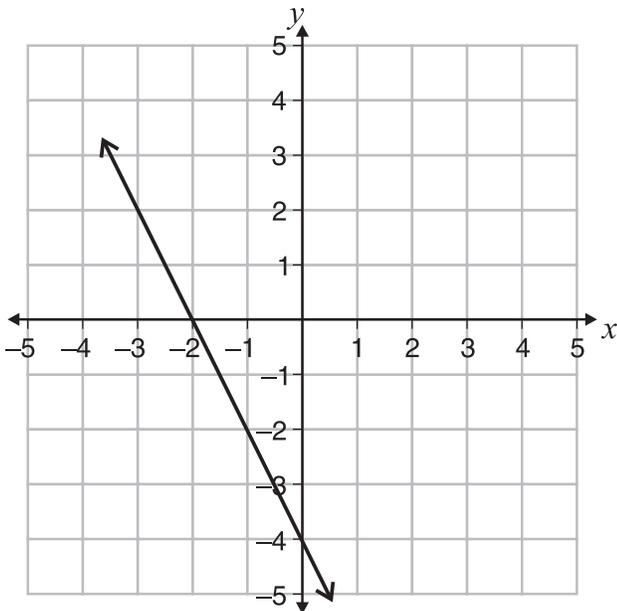


Directions: Choose the best answer for each multiple-choice question. Then mark the space for the answer you have chosen on your answer sheet.

1. If a cookie recipe calls for $1\frac{1}{2}$ cups of sugar, how much sugar will Jon need to make **half** a recipe?

- A. $\frac{1}{2}$ cup
- B. $\frac{3}{4}$ cup
- C. 1 cup
- D. $1\frac{1}{4}$ cups

Use the graph below to answer question 2.



2. Which ordered pair gives the coordinates of a point on this graph?

- A. (-1, -2)
- B. (-2, -1)
- C. (1, -2)
- D. (2, -1)

3. A telephone company charges \$13 per month for telephone service plus \$0.09 per minute for all long-distance calls. If c is the total charge in dollars for the month and m is the number of minutes of long-distance calls made, which equation is correct?

- A. $c = 13 + 0.09m$
- B. $c = 13 + 9m$
- C. $c = 9 + 0.13m$
- D. $c = 9 + 13m$

4. What is the value of the expression $x^2 + 4x + 3$ when $x = 3$?

- A. 16
- B. 18
- C. 21
- D. 24

5. Which list shows the integers ordered from least to greatest?

- A. -2, -3, 1, 3
- B. 1, 3, -2, -3
- C. -3, -2, 1, 3
- D. 1, -2, -3, 3

6. Which expression is equivalent to $2\left(\frac{x+2}{x+2}\right)$?
- A. $2(x+2)$
- B. $\frac{2x+2}{x+2}$
- C. 1
- D. 2
7. A geometry class had 30 students. Six students moved to a different class. What **percentage** of the geometry students changed classes?
- A. 6%
- B. 15%
- C. 20%
- D. 25%
8. If $\frac{x}{2} = 3$, what is x ?
- A. $\frac{1}{2}$
- B. $\frac{3}{2}$
- C. 3
- D. 6

Use the table below to answer question 9.

Cost to Prepare Hot Dogs

Hot Dogs Prepared	1	2	3	4
Cost	\$15.50	\$16.00	\$16.50	\$17.00

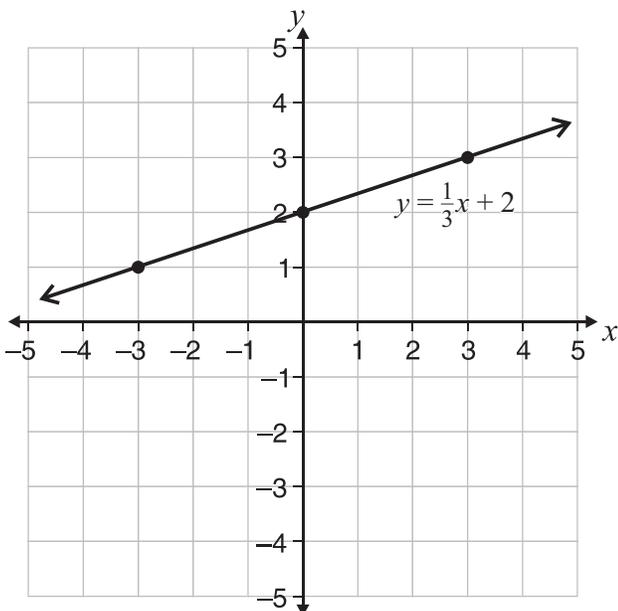
9. Arnold has a hot dog stand. This table shows a linear relationship between the cost of his supplies and the number of hot dogs prepared. Based on the table, what would be the cost of preparing 7 hot dogs?
- A. \$17.50
- B. \$18.50
- C. \$29.50
- D. \$33.50
10. A lawn fertilizer is to be mixed with water in a ratio of 9 parts water to 2 parts fertilizer. How much water should be added to 12 cups of fertilizer?
- A. 3 cups
- B. 24 cups
- C. 54 cups
- D. 108 cups

11. Compute:

$$\frac{1}{7} + \frac{3}{7}$$

- A. $\frac{3}{49}$
- B. $\frac{4}{49}$
- C. $\frac{4}{14}$
- D. $\frac{4}{7}$

Use the graph below to answer question 12.



12. If the equation is changed to $y = \frac{1}{3}x + 4$, what change will occur in the graph?

- A. The graph will shift up by two units.
- B. The graph will shift down by two units.
- C. The graph will shift right by two units.
- D. The graph will shift left by two units.

13. A recipe that will make 12 cakes calls for 9 cups of sugar. If the baker only wants to make 4 cakes, how many cups of sugar will be required?

- A. 3 cups
- B. $3\frac{1}{4}$ cups
- C. $3\frac{1}{2}$ cups
- D. 4 cups

14. Simplify the following expression:

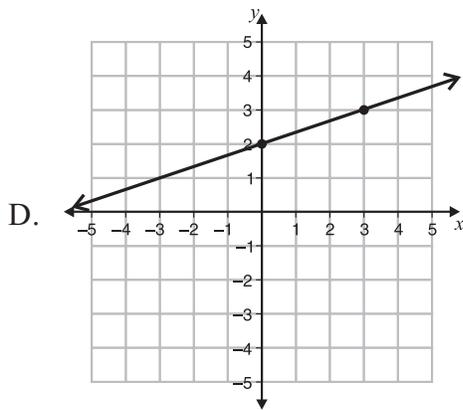
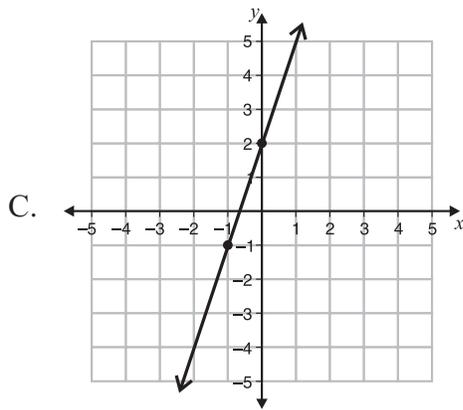
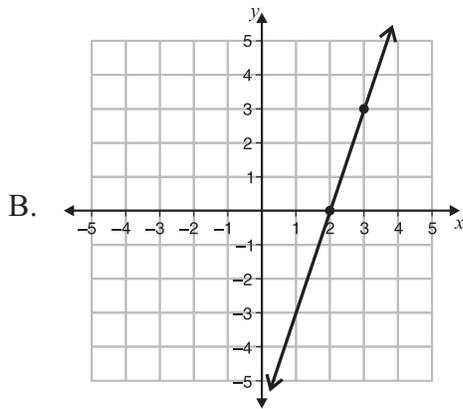
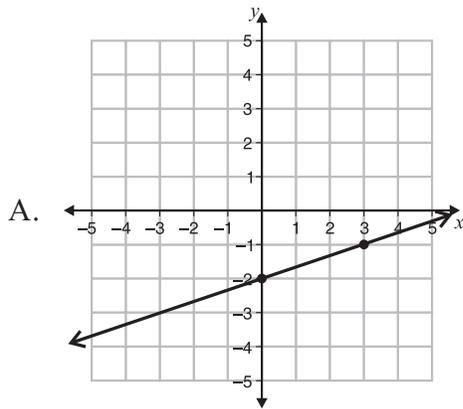
$$2x + 2(3x^2 - 3x)$$

- A. $6x^2 - x$
- B. $6x^2 - 4x$
- C. $6x^3 - 6x$
- D. $6x^3 - 3x^2 + 2x$

15. An electrician charges \$50 for making a service call plus \$28 per hour of work. If c is the total cost of the service call and h is the number of hours of work, which equation is correct?

- A. $c = 50h - 28$
- B. $c = 50h + 28$
- C. $c = 28h - 50$
- D. $c = 28h + 50$

16. Which graph represents the equation $y = 3x + 2$?



17. Which number is between $2\frac{1}{4}$ and $2\frac{1}{2}$?

- A. $2\frac{3}{16}$
- B. $2\frac{3}{8}$
- C. $2\frac{9}{16}$
- D. $2\frac{5}{8}$

18. A pair of skis that originally cost \$400 is now on sale for 25% off. What is the sale price of the skis?

- A. \$300
- B. \$325
- C. \$350
- D. \$375

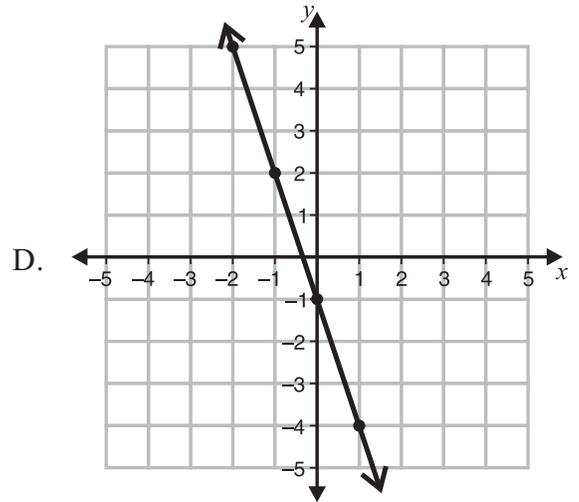
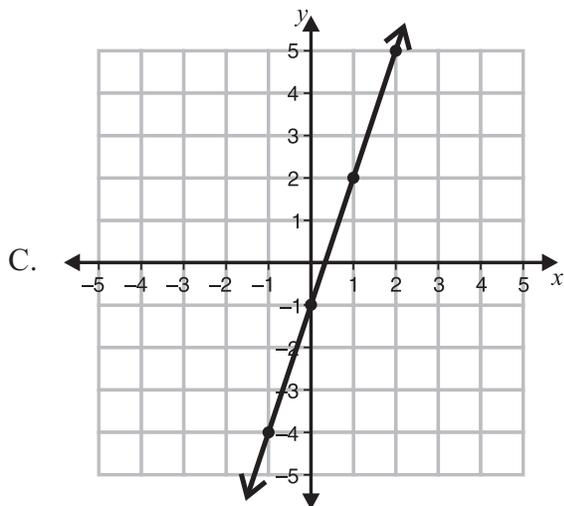
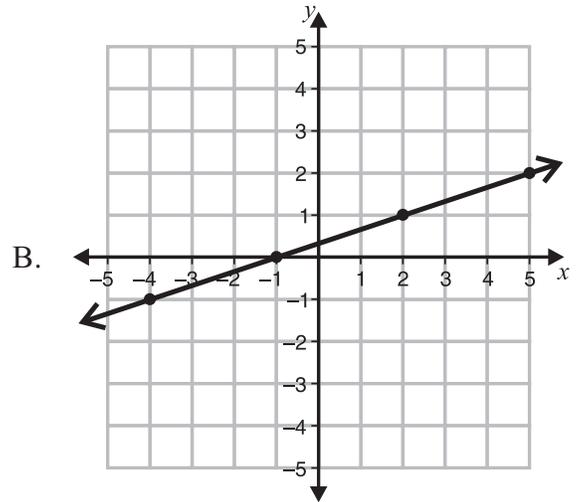
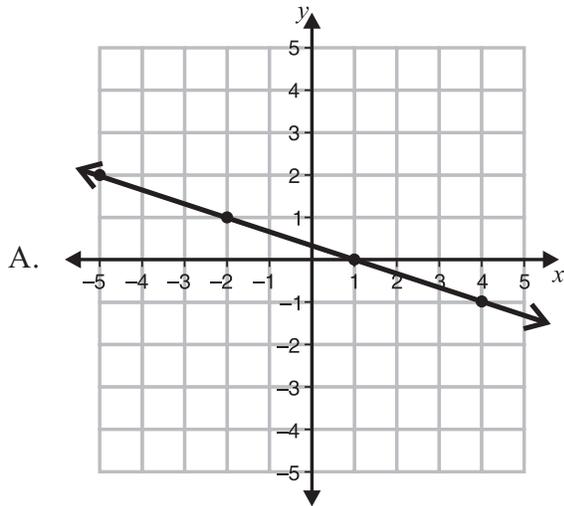
19. An irrigation system can deliver 2 cubic feet of water per second to crops in a field. At that rate, how much water can this system deliver in 1 hour?

- A. 120 cubic feet
- B. 240 cubic feet
- C. 3,600 cubic feet
- D. 7,200 cubic feet

Use the table of values below to answer question 20.

x	-2	-1	0	1
y	5	2	-1	-4

20. Which line is the correct graph for the ordered pairs in this table?



21. Solve for x in the following proportion:

$$\frac{x + 3}{5} = \frac{12}{6}$$

- A. 2
- B. 7
- C. 9.5
- D. 11.4

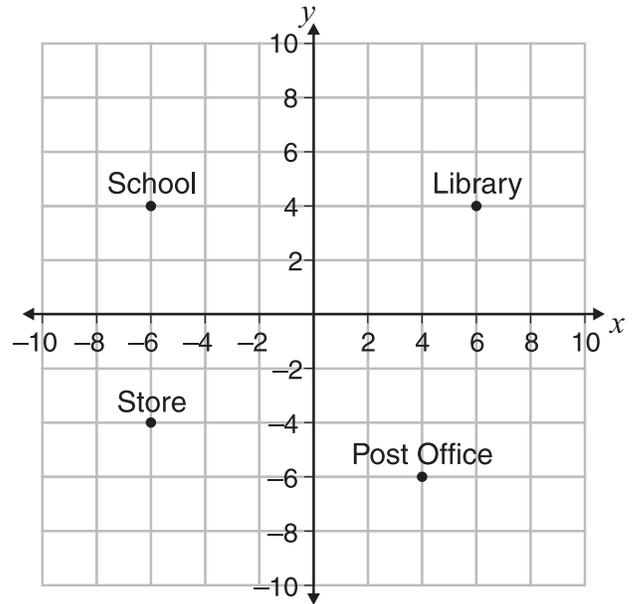
22. Which expression is equivalent to $7 + b - b$?

- A. $7 + 2b$
- B. $7 - 2b$
- C. 7
- D. 0

23. In a random sample of 30 people, 18 had whiter teeth after using Clean Teeth Toothpaste for one year. Based on this sample, how many people out of a population of 1,500 should expect whiter teeth after using Clean Teeth Toothpaste for one year?

- A. 270
- B. 450
- C. 750
- D. 900

Use the graph below to answer question 24.



24. This graph shows the locations of some buildings. What are the coordinates of the school?

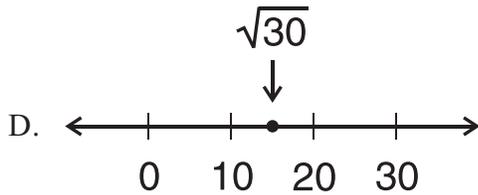
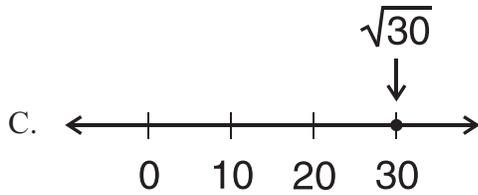
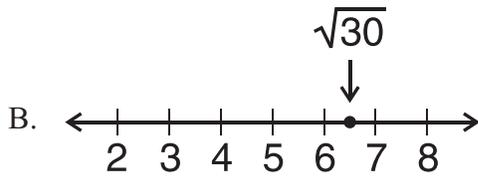
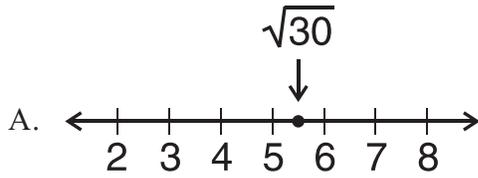
- A. $(-4, 6)$
- B. $(4, -6)$
- C. $(-6, 4)$
- D. $(-6, -4)$

25. Simplify the following expression:

$$5x(4x - 3y + 2)$$

- A. $20x - 3y + 2$
- B. $20x + 2y + 10x$
- C. $20x^2 - 15xy + 2$
- D. $20x^2 - 15xy + 10x$

26. Which number line shows the correct location of $\sqrt{30}$?



27. If $x + 3 = 0$, what is x ?

- A. -3
- B. 0
- C. $\frac{1}{3}$
- D. 3

Use the table below to answer question 28.

Amount of Water Available

Day	0	1	2	3
Water Available (gallons)	15,000	12,500	10,000	7,500

28. A water tank holds 15,000 gallons of water. If the amount of water in the tank continues to decrease at the rate shown in the chart, on which day will the tank be empty?

- A. Day 5
- B. Day 6
- C. Day 7
- D. Day 8

29. Which two numbers are both equivalent to $\frac{1}{3}$?

- A. $0.33\bar{3}$ and $33\frac{1}{3}\%$
- B. 0.3 and $33\frac{1}{3}\%$
- C. $0.33\bar{3}$ and 0.33%
- D. 0.3 and 30%

30. Solve for x in this proportion:

$$\frac{3}{8} = \frac{x}{32}$$

- A. 11
- B. 12
- C. 24
- D. 27

31. Simplify the following expression:

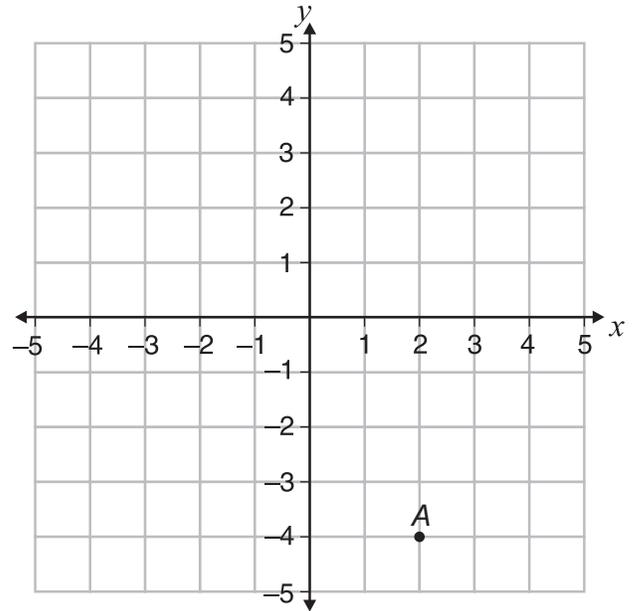
$$-2x(-3x^2 + 5x - 9)$$

- A. $-6x^3 + 10x^2 - 18x$
- B. $-6x^3 + 10x^2 + 18x$
- C. $6x^3 + 10x^2 - 18x$
- D. $6x^3 - 10x^2 + 18x$

32. Which list shows the numbers ordered from least to greatest?

- A. $\frac{3}{2}, \frac{9}{2}, \sqrt{8}, 3$
- B. $3, \frac{3}{2}, \frac{9}{2}, \sqrt{8}$
- C. $\frac{3}{2}, \sqrt{8}, 3, \frac{9}{2}$
- D. $\sqrt{8}, \frac{3}{2}, \frac{9}{2}, 3$

Use the graph below to answer question 33.



33. What are the coordinates of point A ?

- A. $(2, -4)$
- B. $(4, -8)$
- C. $(-4, 2)$
- D. $(-8, 4)$

34. Clint's income tax is 25% of his income. If he earns \$400, how much is his tax?
- A. \$ 10
 - B. \$ 25
 - C. \$100
 - D. \$375

35. Tim's car travels 325 miles on 13 gallons of gas. Which of the following is the correct proportion to use to determine the number of miles, x , that Tim's car can travel on 18 gallons of gas?

A. $\frac{13}{325} = \frac{18}{x}$

B. $\frac{18}{325} = \frac{13}{x}$

C. $\frac{13}{325} = \frac{x}{18}$

D. $\frac{18}{325} = \frac{x}{13}$



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